

**Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Currently amended) A system for use in detecting and diagnosing ear related conditions, the system comprising:
  - (a) a device capable of obtaining a spectrum of reflected light from an ear of a subject; and
  - (b) a processing unit in connection with said device which is capable of translating the obtained spectrum of reflected light to one or more output values related to the condition of the ear, the processing unit comprising a spectral analytical instrument in the form of a spectrometer, which receives said spectrum of reflected light and produces an analog signal indicative thereof, the processing unit being preprogrammed with certain models capable of analyzing the analog signal and converting it to at least one digital value presenting a spectrum vector indicative of a determined state of the ear, processing the spectrum vector by comparing to at least one predetermined reference value, and applying a classification model to the processed spectrum value vector to thereby classify the determined state of the ear and generate output data indicative of one of the

following ear conditions: normal condition, serous otitis media condition, and otitis media condition.

8. (Original) The system of claim 7, wherein said spectrometer is sensitive to wavelengths of approximately between 400nm to 1200nm.

9. (Previously presented) The system of claim 7, wherein said spectral analytical instrument includes at least one filter.

10. (Canceled)

11. (Original) The system of claim 10, wherein said processing unit further comprises a microprocessor interfaced with said converter.

12. (Original) The system of claim 11, wherein said microprocessor comprises an accessible memory.

13. (Previously presented) The system of claim 7, wherein said processing unit comprises a display for displaying said one or more output values.

14. (Original) The system of claim 13, wherein said display includes an LCD display.

15. (Previously presented) The system of claim 7, wherein said one or more output values indicate the health of the ear.

16. (Original) The system of claim 15, wherein said one or more output values indicate whether there is otitis media or serous otitis media.

17. (Currently Amended) The system of claim 16, wherein the statistical confidence of the—a decision is additionally indicated.

18. (Previously presented) The system of claim 7, wherein said at least one reference value is at least one digital value resulting from diagnosing the other ear of said subject with said system.

**19.** (Previously presented) The system of claim 7, wherein said at least one reference value is at least one digital value resulting from a diagnosis of a healthy ear with said system.

**20.** (Currently Amended) The system of claim 7, wherein said at least one reference value is a statistical range of values resulting from healthy ears.

**21.** (Currently Amended) The system of claim 7, wherein said at least one reference value is a statistical range of values resulting from ears with otitis media.

**22.** (Currently Amended) The system of claim 7, wherein said at least one reference value is a statistical range of values resulting from ears with serous otitis media.

**23.** (Canceled)

**24.** (Canceled)

**25.** (Previously presented) The system of claim 7, wherein said processing unit further comprises an input unit including at least a numeric keyboard and an LCD display, for inputting information, and for further saving said information with said one or more output values in a file.

**26.** (Original) The system of claim 25, wherein said information includes at least one of the following: user data and the side of said ear.

**27.** (Original) The system of claim 25, wherein said processing unit further comprises a clock for indicating the time and date of said one or more output values, and wherein the processing unit further saves said time and date with said one or more output values in said file.

**28.** (Original) The system of claim 25, wherein said processing unit is in communication with a personal computer.

**29.** (Previously presented) The system of claim 7, wherein said system is incorporated into a single hand - held unit.

**30.** (Original) The system of claim 29, wherein the single hand - held unit is an otoscope.

**31.** (Previously presented) The system of claim 7, wherein said device capable of obtaining a spectrum of reflected light is incorporated into an otoscope.

**32.** (Previously presented) The system of claim 7, wherein the processing unit is further connected to the internet.

**33-43.** (Canceled)

**44.** (Previously presented) The system of claim 7, wherein said processing unit is operable to translate at least one selected region of the obtained spectrum of the reflected light to said one or more output values related to the condition of the ear.

**45.** (Currently amended) A system for use in detecting and diagnosing ear related conditions, the system comprising:

- (a) a device capable of obtaining a spectrum of reflected light from an ear of a subject; and
- (b) a processing unit in connection with said device which is capable of translating the obtained spectrum of reflected light to one or more output values related to the condition of the ear, the processing unit comprises a spectral analytical instrument in the form of a spectrometer for receiving said spectrum and producing an analog signal indicative thereof, the processing unit being preprogrammed with certain models capable of analyzing the analog signal and converting it to at least one digital value presenting a spectrum vector indicative of a determined state of the ear, processing the spectrum vector by comparing it to at least one predetermined reference value, and applying a classification model to the processed spectrum value vector to thereby classify

the determined state of the ear and generate output data indicative of one of the following ear related conditions: normal condition, serous otitis media condition, and otitis media condition, wherein at least one digital value includes at least one digital value of a reflectance at wavelength of approximately 650-700nm, the processing unit being configured and operable for further comparing said value to a statistical reflectance at wavelength of approximately 650-700nm of a healthy ear thereby determining the redness degree of the tympanic membrane of said ear.

**46.** (Currently amended) A system for use in detecting and diagnosing ear related conditions, the system comprising:

- (a) a device capable of obtaining a spectrum of reflected light from an ear of a subject; and
- (b) a processing unit in connection with said device which is capable of translating the obtained spectrum of reflected light to one or more output values related to the condition of the ear, the processing unit comprises a spectral analytical instrument in the form of a spectrometer for receiving said spectrum and producing an analog signal indicative thereof, the processing unit being preprogrammed with certain models capable of analyzing the analog signal and converting it to at least one digital value presenting a spectrum vector indicative of a determined state of the ear, processing the spectrum vector by comparing it to at least one predetermined reference value, and applying a classification model to the processed spectrum value-vector to thereby classify the determined state of the ear and generate output data indicative of one of the following ear related conditions:

normal condition, serous otitis media condition, and otitis media condition, wherein at least one digital value includes a digital value of a reflectance of wavelength of approximately 962 nm, the processing unit being configured and operable for further comparing said value to a statistical reflectance at wavelength of approximately 962 nm of a healthy ear thereby determining the effusion degree in the middle ear.